

JULY 2008 WEATHER SUMMARY

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There was little change in the weather pattern over the central California interior for the first three days of July, as an upper-level ridge of high pressure centered over Arizona kept central and southern San Joaquin Valley high temperatures in the mid to upper 90s. By the 3rd, an upper-level low approached the Oregon coast. A trough associated with the low moved through the state on Independence Day, bringing as much as 8 degrees cooling to the central California interior and dropping central/south Valley highs into the mid 80s to around 90. The airports at Madera and Merced both reported highs for July 4th of only 86 degrees, and neither Bakersfield nor Fresno got warmer than 90.

The trough moved northeast of the region on July 5th as the upper-level ridge over Arizona built back over California, and another ridge over the east Pacific spread eastward. The two ridges merged, pushing the jet stream north of the state and bringing a strong warming trend. The numerical forecast models had indicated this warming trend several days in advance, and the National Weather Service Forecast Office in Hanford began issuing Special Weather Statements in the afternoon of July 4th on the upcoming unseasonably hot weather.

As the ridge strengthened, temperatures warmed several degrees daily. A Heat Advisory was issued during the afternoon of July 8th for temperatures in the central and southern San Joaquin Valley expected to be above 105 degrees over the next few days.

The center of the ridge moved north to over Oregon, with circulation around the ridge core setting up an east-to-west flow over the Southern Sierra Nevada. Thunderstorms developed over Mono County during the afternoon of July 7th, and drifted over the crest into Yosemite National Park. The next day, convection developed over the eastern California deserts, spreading westward into the mountains and Kern deserts. Mid-level clouds from these thunderstorms spread over the Hanford Warning/Forecast Area on the 9th, keeping overnight temperatures warm. In the mountains and deserts, the clouds reduced the solar heating. As a result, convection was limited.

Temperatures rose to 10-15 degrees above normal by July 10th. Fresno reached a high of 112 on July 10th, and Bakersfield reached 111 degrees. Low temperatures for the two cities were in the lower to mid 80s both on the 9th (although this was due more to the clouds over the region) and on the 10th, setting record high minimum temperatures both days. Compounding the impact of the increasing temperatures, smoke from Piute fire began drifting into the Kern Mountains and south end of the San Joaquin Valley on the 7th, then spread northward over the next several days.

The upper-level ridge moved inland on July 11th, with a trough moving to along the coast. This pattern set up a southerly flow aloft over California, drawing up monsoonal moisture from the southeast on the 12th. Thunderstorms formed over the Tulare County Mountains

by the early afternoon of the 12th. The storms become stronger as they spread south into Kern County. A strong thunderstorm over the Piute Wildfire area dropped locally heavy rain on land denuded by the fire. This resulted in runoff filling creeks and streams, with a mud and debris flow flooding part of the town Lake Isabella.

Strong thunderstorms over the El Paso Mountains during the afternoon of July 13th caused flash flooding on the Randsburg Road, with erosion of the road. Later storms over the Piute Mountains caused flooding of Erskine Creek with mud and debris flows again moving into the town of Lake Isabella.

Afternoon and evening thunderstorms continued through the 15th, with activity diminishing on the 16th. Flooding was observed in the Thompson Canyon, Erskine Creek, and Kelso Canyon areas. The town of Lake Isabella experienced three days of mud and debris flows flooding parts of the town.

The upper-level ridge built back into California on the 17th-19th. A thunderstorm north of Ridgecrest during the afternoon of July 17th dropped ½-inch diameter hail. The next two days brought the mountains and deserts a brief respite from the thunderstorms. An upper-level trough approached California on the 20th, bringing another surge of monsoonal moisture into the eastern Kern deserts. Outflow boundaries from nocturnal convection over Arizona and northern Mexico generated pre-dawn showers over the China Lake Naval Air Warfare Center and spread clouds across the mountains and the San Joaquin Valley. With the warm, unstable airmass over the region, showers and thunderstorms developed over the Tehachapi Mountains and drifted north into Kern County around sunrise. One storm strengthened into a thunderstorm near Delano, and brought the first measurable rain to Visalia and Fresno since May 27th. 0.01 inch of rain fell at Fresno-Yosemite International Airport, and the Visalia Municipal Airport recorded 0.03 inch of rain from the storm. Widespread mid-level clouds accompanied the monsoonal moisture, and these clouds, in conjunction with a push of low-level marine air through the Sacramento Delta, brought sharp cooling to much of the central and southern San Joaquin Valley on the 20th and 21st. The high temperature for Fresno on July 19th was 102. The next day, Fresno could only reach a high of 89 degrees, a difference of 13 degrees.

One large thunderstorm formed over Barstow during the afternoon of July 20th. As the storm collapsed, strong outflow winds pushed across the Kern County deserts, triggering thunderstorms that produced flash flooding that affected much of Ridgecrest.

An upper-level ridge of high pressure built back into California beginning on July 23rd. Fresno warmed to a high of 99 that day, and was back into triple digits the following day. An upper-level trough on July 28th deepened the marine layer along the coast and brought cooling the San Joaquin Valley, with temperatures falling to near normal. Upper-level ridging returned to the central California interior on the 30th, for warmer weather. High temperatures in the warmest parts central and southern San Joaquin Valley reached the century mark on the last day of the month, although Bakersfield and Fresno stayed in the upper 90s.